Natural Resources Defense Council, Matthew McKinzie, Ph.D., Staff Scientist
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NRDC Comments

-----Original Message-----
From: McKinzie, Matthew [mailto:mmcKinzie@nrdc.org]
Sent: Friday, May 28, 2004 7:11 AM
To: tom.grim@oak.doe.gov
Subject:

Dear Mr. Grim,

Please find attached a portion of NRDC's formal written comments on the Draft LLNL SW/SPEIS--the additional comments regarding the plutonium hazard analysis which Chris Paine mentioned in his e-mail last night.

Unfortunately I was unable to send these comments until this morning. I hope that does not cause any difficulties. If you have any questions please call me at 202-299-4393 today or next week.

Thank you,

Matthew McKinzie

LLNL_SWEIS_Comments_MMcKinzie.doc

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Matthew McKinzie, Ph.D.
Staff Scientist, Nuclear Program
Natural Resources Defense Council
1200 New York Avenue, N.W., Suite 400
Washington, DC 20005

May 27, 2004

Mr. Thomas Grim, L-293
U.S. Department of Energy,
National Nuclear Security Administration
Livermore Site Office, SWEIS Document Manager
7000 East Avenue
Livermore, CA 94550-9234

Fax: (925) 422-1776
Email: tom.grim@oak.doe.gov

Dear Mr. Grim:

I submit the following comments on the DOE/NNSA's Draft Site-Wide Environmental Impact Statement for Continued Operation of Lawrence Livermore National Laboratory and Supplemental Stockpile Stewardship and Management Programmatic Environmental Impact Statement (Draft SW/SPEIS) on behalf of the Natural Resources Defense Council.

1/30.01 My comments focus on the deficiency of the publicly circulated Draft SW/SPEIS regarding a comparative analysis of the consequences of terrorist attack scenarios among the alternatives presented for the continued operation of LLNL. In my judgment this substantial denial of information to the public necessitates further work by the
2/31.04 DOE/NNSA and re-circulation of the document in draft form. This would allow the community, the regulators, and the legislators to have the opportunity to evaluate the new information that is requested in these comments.

As part of the Proposed Action, the DOE/NNSA is considering using plutonium on the National Ignition Facility (NIF), increasing the administrative limit for the use of plutonium on the Superblock and increasing the material-at-risk limit for the Plutonium Facility in the Superblock. The new administrative limit proposed for fuel-grade plutonium in the Draft SW/SPEIS is 1,500 kilograms (kg).

The DOE/NNSA Proposed Action includes the Integrated Technology Project (ITP), requiring LLNL to:

3/27.01 …increase the plutonium material-at-risk limit from 20 to 60 kilograms of fuel-grade equivalent plutonium in each of two rooms of the Plutonium Facility. This

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3/27.01 cont.

increase is needed to meet future Stockpile Stewardship Programs such as ITP and the casting of plutonium parts. [S-16]

The LLNL Draft SW/SPEIS made available to the public omits a comparative analysis of the consequences of terrorist attack scenarios under the No Action, Proposed Action and Reduced Operation alternatives. In the document's summary section, it is stated that all terrorist attack scenario analyses have been classified or otherwise restricted from the public, but it is furthermore implied that the consequences of *any* terrorist attack scenarios would be less severe than the accident scenarios analyzed in the Draft SW/SPEIS:

> The Superblock plutonium inventory is stored in robust vaults and no accident scenario involving the material in the vaults is considered reasonably foreseeable. Terrorist acts and Superblock security are considered in the LLNL SW/SPEIS. The information on these accidents is provided in classified or official use only documents. The accidents discussed in the LLNL SW/SPEIS bound the environmental impacts associated with the proposed higher plutonium inventory limit. [S-15]

4/30.01, 33.01

In the aftermath of the September 11th terrorist attacks, it is common knowledge that government agencies at the local, state and federal levels are engaged in planning and training for emergency responses to terrorist incidents involving chemical, biological and radiological materials or weapons. The Department of Homeland Security now urges individuals to prepare to shelter at their homes or devise a family evacuation plan in the event of such an attack. It is not credible, reasonable or responsible for LLNL to restrict all information from the public pertaining to the risks and consequences of terrorist attacks against the laboratory—particularly attacks targeting its plutonium inventory. The location of LLNL close to residential areas places a further burden on the laboratory to discuss the potential impacts of terrorist attacks against the laboratory on nearby populations.

In addition, NEPA places a legal burden on the DOE/NNSA to contrast the terrorist attack scenario consequences under the No Action, Proposed Action and Reduced Operation alternatives, provide such information to the public during comment periods and use this information in the government decision-making process.

That the February 2004 LLNL Draft SW/SPEIS is deficient in this regard can be illustrated by considering a basic terrorist attack scenario: a truck loaded with two tons of high explosives crashes through the security checkpoint at the Mesquite Way entrance, travels at a high rate of speed less than a kilometer west on Third Street, crashes through the Superblock perimeter fence and detonates near an experimental area where LLNL staff are working with the maximum permitted material-at-risk quantity of plutonium. A comparative analysis of the alternatives for continued operation of LLNL would contrast the consequences from 20 kg versus 60 kg of plutonium subject to blast and fire from such an explosion. Furthermore, it is straightforward to show that the consequences

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4/30.01, 33.01 cont.

could reasonably be modeled as much more significant than the accident scenario consequences discussed in the LLNL Draft SW/SPEIS.

In the wake of the September 11th terrorist attacks there has been an increased use within the U.S. Government of computer models designed to calculate the dispersal of chemical, biological or radiological agents. One computer model that currently has widespread use in the U.S. military and emergency first-responder communities is HPAC, which stands for Hazard Prediction and Assessment Capability. HPAC was developed to accurately predict the effects of hazardous material releases into the atmosphere and calculate the corresponding impacts on civilian and military populations. The HPAC software is distributed by the Defense Threat Reduction Agency (DTRA), an agency of the U.S. Department of Defense. The NRDC is a licensed user of HPAC.

HPAC can be used to model the dispersal of radiological material through its "Radiological Weapon Incident Model." Within this model, the user has the option to enter a source term for "No/Partial Yield Nuclear Weapon and Explosives Dispersal of Radioactivity." In the calculation of this source term, the HPAC user inputs the TNT equivalent of the high explosive yield, the mass of plutonium involved in the incident and the respirable plutonium particle fraction. This type of calculation would neglect any mitigating effects of the physical structure of the Superblock or the additional dispersal of plutonium to the environment due to secondary fires after the explosion. The HPAC model illustrates how widely plutonium could be dispersed and the impacts to nearby residential population centers when the plutonium is in proximity to an explosion. Nevertheless, these calculations show a substantial difference in consequences between the alternatives put forward in the Draft SW/SPEIS and imply a much larger impact than the accident scenarios discussed in the publicly circulated Draft SW/SPEIS.

5/25.05

The LLNL is located at 37° 41' North and 121° 42' West in Alameda County approximately 40 miles east of San Francisco. According to the 2000 U.S. census data analyzed by census blocks in the vicinity of the Lab, approximately 2,100 people live within one mile of LLNL, 69,000 people within 5 miles, 123,000 people within 10 miles and 7.2 million people live within 50 miles of the Lab. Just how far plutonium would be dispersed in a hypothetical incident at LLNL would depend on the severity of damage to the Superblock, the quantity of plutonium involved in the incident and the speed and direction of the prevailing winds.

For this public comment we look at a worst-case scenario where the wind is blowing from the east towards Livermore, Oakland and San Francisco. According to the Draft SW/SPEIS, such winds are observed during the wet season (November through May) five percent of the time at speeds from 0.5 to 3 meters per second (mps) [4.7-4].

HPAC calculations of the consequences of terrorist incidents involving 20 kg and 60 kg of plutonium are shown below. The plume of plutonium is calculated to extend westward to San Francisco, contaminating a very large area and placing thousands of individuals at risk for radiation sickness and cancers. These calculations further show that the 60 kg scenario is much worse than the 20 kg scenario: a significant difference between the

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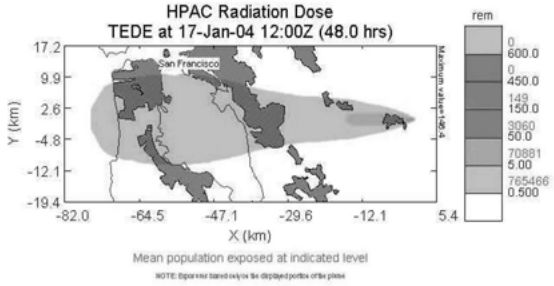
5/25.05 cont. proposed alternatives for continued operation of LLNL that must be included in the publicly circulated Draft SW/SPEIS and serve as a factor in government decision-making.



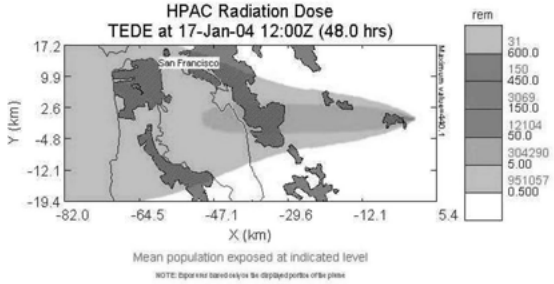


Figure: HPAC calculations of the dispersal of 20 kg of plutonium (above) and 60 kg of plutonium (below) after a terrorist attack involving two tons of high explosives. Winds were fixed at 1.5 mps blowing from the east. Dose contours are for unsheltered individuals exposed to the plume for 48 hours after the explosion.

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5/25.05 cont. The calculations shown here are illustrative of the data that needs to be included in the publicly circulated Draft SW/SPEIS to satisfy the requirements of NEPA, particularly in the current security environment. The alternatives analysis of the Draft SW/SPEIS should be revised to consider such terrorist attack scenarios, as well as the compelling case for removing special nuclear materials (i.e., plutonium and highly enriched uranium) from the LLNL site. 6/30.01, 08.02, 31.04

Sincerely,

Matthew McKinzie, Ph.D.
Staff Scientist, Natural Resources Defense Council

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Nevada Desert Experience

Mr. Tom Grim
Document Manager
National Nuclear Security Administration
Livermore Site Office, L-293
7000 East Avenue
Livermore, CA 94550-9234

RE: Comments on the Department of Energy's Site-Wide Environmental Impact Statement (SWEIS) for Continued Operations at Lawrence Livermore National Laboratory (LLNL).

May 25, 2004

Dear Mr. Grim:

I write on behalf of the ***Nevada Desert Experience***, a faith-based organization that has been working for peace and the abolition of nuclear weapons for over 20 years. I recently attended the SWEIS public hearing in Livermore on April 27, 2004. As you remember, there was a very large crowd of people there, almost all of them there to express their dissatisfaction and concerns over the DOE's future plans for the LLNL. Although I did not have a chance to speak because of the time restrictions, my sentiments and beliefs were echoed through the voices of the various people present at that public hearing, as well as the other hearings.

It is now the end of the public comment period, and I have no doubt that you have received hundreds of postcards, phone calls, emails and letters expressing opposition of the plans at Livermore. As you well know, the10 year plan will have serious health and environmental consequences. I live in the Bay Area, only 40 miles from Livermore. I know that I live within the area that will be contaminated, should an accident or leak occur at the labs. What about the children living down the street from the labs, playing in their schoolyard – or the lab worker who unknowingly inhales a toxic substance and later becomes ill? I ask you to please remember these people when you continue to consider your future plans for the weapons labs. 1/23.01

In addition, I write specifically for point number 8, which calls for **"enhanced readiness"** at the Nevada Test Site. My employer organization works for the end to testing and other war making preparations at the NTS. We know that the effects of testing nuclear weapons and their components is hazardous and often deadly. The air and land surrounding the test site are contaminated. Additionally, the land rightfully belongs the Western Shoshone Nation, yet the US government continues to deny the rights of the indigenous people of the land. Instead, they have illegally seized the land, and used to create and test weapons of mass destruction. 2/07.02, 39.01

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3/32.02 But by far, the worst effect of the DOE plans are the **hundreds and thousands of lives that will be lost when we decide to use the weapons of mass destruction**. True security for our nation and for the world will come only through peace and communication, not through a build up of our weapons and the use of them! I implore you to consider the lives that will be lost because our nation finds it necessary to have a policy of empire. **I oppose the current plans of the DOE for the future of the Lawrence Livermore National Laboratories**. 4/04.01

5/31.04 Through this letter we, the members of the Nevada Desert Experience, are expressing our deep concern with the health and environmental risks posed by the expanded nuclear weapons mission for the Lawrence Livermore National Laboratory (LLNL) into the indefinite future. We appreciate your focused attention to this matter. Below, we have outlined a number of specific concerns that, taken cumulatively, lead us to the conclusion that the Site Wide Environmental Impact Statement (SWEIS) for the continuing operation of LLNL is so deficient in information and analysis that it must be fixed and re-circulated in draft form. This would allow the community, the regulators, and the legislators to have the opportunity to evaluate the new information that is requested in these comments. Our specific concerns are:

6/08.02 1. The same day of the public hearings for the SWEIS, April 27, 2004, the Congressional Subcommittee on National Security, Emerging Threats, and International Relations for the Committee on Government Reform held a hearing on the security of nuclear materials. The hearing highlighted potentially insurmountable problems with plutonium and highly enriched uranium at certain Department of Energy (DOE) sites, with a focus on the vulnerability of nuclear materials storage at LLNL. On May 7, 2004, Energy Secretary Spencer Abraham delivered a speech on the deficiencies in the security of nuclear materials at LLNL and other DOE sites. The Energy Secretary made a commitment to consider removing the special nuclear materials at LLNL by 2005. This recent acknowledgement by the DOE that security at LLNL is questionable makes it imperative that the SWEIS evaluate an alternative that would remove all special nuclear materials from LLNL. These acknowledgements make this not only a reasonable option, but one that should be evaluated because it is a foreseeable outcome within the next decade at LLNL.

2. Instead of reducing the amount of special nuclear materials on-site at LLNL, this plan proposes to more than double the limit for plutonium at Livermore Lab from 1,540 pounds to 3,300 pounds. Additionally, under the Proposed Action, the administrative limit for highly enriched uranium in Building 239 would increase from 55 pounds to 110 pounds. Seven million people live in surrounding areas, and residences are built right up to the fence. Plutonium is difficult to store safely because, in certain forms, it can spontaneously ignite and burn. Moreover, it poses a criticality risk when significant quantities are stored in close proximity. The amount of plutonium proposed for LLNL is sufficient to make more than 300 nuclear bombs. Because of the health risks, the proliferation dangers, storage hazards, and very serious security concerns, we believe it is irresponsible to store plutonium, highly enriched uranium and tritium at LLNL. We are calling upon the DOE to de-inventory the plutonium, highly enriched uranium and tritium stocks at LLNL rather than to increase them.

7/34.01 8/33.01, 25.01 3. The SWEIS proposes to increase the at-risk limits for tritium ten fold, from just over 3 grams to 30 grams. The SWEIS proposes to increase the at-risk limit for plutonium from 44 pounds to 132 pounds. We believe it is unsafe to increase the amount of tritium and plutonium that can be "in process" in one room at one time. LLNL has a history of criticality violations with plutonium

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7/34.01
8/33.01, 25.01 cont.

and releases of both tritium and plutonium, making it evident that these amounts should be decreased, rather than increased.

9/27.01

4. This plan will revive a project that was canceled more than 10 years ago because it was dangerous and unnecessary. The project was called Plutonium - Atomic Vapor Laser Isotope Separation (AVLIS). Now it is called the "Integrated Technology Project"(ITP) and the "Advanced Materials Program"(AMP). This is a scheme to heat and vaporize plutonium and then shoot multiple laser beams through the vapor to separate out plutonium isotopes. The ITP / AMP is a health risk and a nuclear proliferation nightmare. We believe the ITP and AMP work should be cancelled as the Plutonium AVLIS was cancelled in 1990 - this time permanently.

10/37.01

5. This plan makes Livermore Lab the place to test new manufacturing technologies for producing plutonium pits for nuclear weapons. A pit is the softball-sized piece of plutonium that sits inside a modern nuclear weapon and triggers its thermonuclear explosion. DOE says these new technologies will then be used in a new bomb factory, called the Modern Pit Facility (MPF). Public and Congressional opposition to the MPF has caused its delay this year. The Livermore Lab plutonium pit program goes full-speed ahead in the wrong direction. It will enable the MPF and production of 150 - 450 plutonium bomb cores annually, with the ability to run double shifts and produce 900 cores per year. This production capability would approximate the combined nuclear arsenals of France and China - each year. We call upon the DOE to halt all work on plutonium pit production technologies at Livermore Lab. We believe it is premature for the DOE to spend taxpayer dollars on this technology and the prudent and reasonable outcome is to delay or cancel this project.

11/26.01
12/26.03

6. This plan will add plutonium, highly-enriched uranium and large quantities of lithium hydride to experiments in the National Ignition Facility mega-laser when it is completed at Livermore Lab. Using these materials in the NIF will increase its usefulness for nuclear weapons development, including for the design of new types of nuclear weapons. It will also make the NIF more hazardous to workers and the environment. This is not only dangerous to people's health and safety, and a proliferation risk, but it is sure to result in an inordinate cost to the taxpayer. No cost estimate associated with this proposal has been released to date. We ask the DOE to cancel these dangerous, polluting, proliferation-provocative and unnecessary new experiments proposed for the NIF.

13/26.04

7. The SWEIS reveals plans to manufacture tritium targets at LLNL. The tritium-filled targets are the radioactive fuel pellets that the NIF's 192 laser beams will "shoot" in an attempt to create a thermonuclear explosion. Producing the targets will increase the amount of tritium that is used in any one room at Livermore Lab from the current limit of just over 3 grams to 30 grams - nearly 10-fold more. In the mid-1990's, LLNL stated that target fabrication was to occur off-site because of LLNL's proximity to large populations. Livermore Lab has a history of tritium accidents, spills and releases. The NIF will increase the amount of airborne radioactivity emanating from LLNL. We call on DOE to cancel plans to manufacture tritium targets for NIF at Livermore Lab. Further, we urge cancellation of the NIF megalaser. Cancellation of NIF is a reasonable alternative that should be fully analyzed in the SWEIS.

14/39.01

8. This plan also calls for Livermore Lab to develop diagnostics to "enhance" the nation's readiness to conduct full-scale underground nuclear tests. This is a dangerous step back to the days of unrestrained nuclear testing. All work at LLNL to reduce the time it takes to conduct a full-scale underground nuclear test should be terminated immediately.

15/35.01

9. This plan mixes bugs and bombs at Livermore. It calls for collocating an advanced bio-warfare agent facility (BSL-3) with nuclear weapons activities in a classified area at Livermore

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15/35.01 cont.

Lab. The plan proposes genetic modification and aerosolization (spraying) with live anthrax, plague and other deadly pathogens. This could weaken the international biological weapons treaty -- and it poses a risk to workers, the public and the environment here in the Bay Area. The draft SWEIS does not adequately describe these programs, or the unique security, health and environmental hazards they present. Construction should be halted on the portable BSL-3 facility. All plans to conduct advanced bio-warfare agent (BSL-3) research on site at LLNL should be terminated.

16/14.01

10. There are 108 buildings identified at LLNL as having potential seismic deficiencies relative to current codes. The SWEIS should include a complete list of these buildings and an accounting of the ones that house or may house hazardous, radiological and biological research materials. LLNL is located within 1 kilometer of two significant earthquake faults, including the Las Positas Fault Zone less than 200 feet from the LLNL boundary. How can we mitigate harm done from an earthquake that damages these buildings before they are brought up to code? We urge the Livermore Lab to stop any work with hazardous, radioactive or biological substances that may be occurring in any building that does not comply with federal standards.

17/20.05, 22.01

11. A contractor will be paid to package and ship more than 1,000 drums of transuranic and mixed transuranic waste to the WIPP dump in New Mexico, yet the SWEIS says this is exempt from environmental review. This work in its entirety must be included in the review.
12. The DOE does not acknowledge in the SWEIS that the double-walled shipping containers described in the document may be replaced by less health - protective single-lined containers. We believe that no waste should be shipped in single-walled containers and the SWEIS should provide a guarantee to that effect.

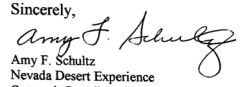
18/01.01

13. The Purpose and Need statement in the SWEIS relies heavily upon the US Nuclear Posture Review, which calls for an aggressive modernization and manufacturing base within the US nuclear weapons complex. This stands in stark contrast to the binding legal mandate to shift "from developing and producing new weapons designs to dismantling obsolete weapons and maintaining a smaller weapons arsenal". We believe a revised Purpose and Need statement should accurately reflect the Livermore Lab's legal responsibility with regard to US law, including US obligations under the nuclear Non-Proliferation Treaty (NPT).
Further, the Purpose and Need statement in the SWEIS almost completely omits LLNL's important role in civilian science research. This omission fatally flaws the alternatives analysis in the SWEIS by neglecting to consider the expanded role that civilian science programs at the LLNL could play in the next decade.

19/07.01

The alternatives analysis should be revised to consider LLNL's role in light of the commitments in the NPT and the Livermore Lab's civilian science mission as well as the compelling case for removing special nuclear materials (i.e., plutonium and highly enriched uranium) from the LLNL site.

Sincerely,



Amy F. Schultz
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